This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently amended) An integrated optic polarization splitter comprising:

an input waveguide element that is configured to receive in input[[s]] an optical signal having TE and TM components;

a geometrically vertically oriented waveguide element coupled to said input waveguide element that is configured to propagate[[s]] said TM component of said optical signal, said vertically oriented waveguide element including a plurality of core layers; and

a horizontally oriented waveguide element coupled to said input waveguide element that is configured to propagate[[s]] said TE component of said optical signal.

2. (Currently amended) The integrated optic polarization splitter of claim 1, wherein said vertically oriented waveguide element and said horizontally oriented waveguide element intersect or nearly intersect ~~before the separation of the vertically and horizontally oriented waveguide sections~~ in correspondence to the input waveguide element and adiabatically separate along the length of the polarization splitter.

3. (Currently amended) The integrated optic polarization splitter of claim 1, wherein said plurality of core layers ~~comprise~~consists of two core layers.

4. (Currently amended) The integrated optic polarization splitter of claim 1, wherein said plurality of core layers comprises no more than three core layers.

5. (Currently amended) A method of forming an integrated optic polarization splitter, said method comprising:

providing an input waveguide element that is configured to receive in input[[s]] an optical signal having TE and TM components; and

forming a geometrically vertically oriented waveguide element coupled to said input waveguide element that is configured to propagate[[s]] said TM component of said optical signal, said vertically oriented waveguide element includes a plurality of core layers; and

forming a horizontally oriented waveguide element coupled to said input waveguide element that is configured to propagate[[s]] said TE component of said optical signal.

6. (Currently amended) The method of claim 5, wherein said vertically oriented waveguide element and said horizontally oriented waveguide element intersect or nearly intersect ~~before the separation of the vertically and horizontally oriented components~~in correspondence to the input waveguide element and adiabatically separate along the length of the polarization splitter.

7. (Currently amended) The method of claim 5, wherein said plurality of core layers ~~comprise~~consists of two layers.

8. (Currently amended) The method of claim 5, wherein said plurality of core layers comprises no more than three layers.

9. (Currently amended) An optical waveguide splitter comprising:

a pair of waveguide elements with a first waveguide element having a horizontal orientation and a second waveguide element having a geometrically vertical orientation formed from a plurality of waveguide core layers, wherein said first and second waveguide elements are intersected or nearly intersected at one end of the structure and separated at the other end of the structure with the transition there between made to be adiabatic;

said waveguide elements being configured to receive an optical signal having both a TE component and a TM component~~, wherein~~ and to propagate said TE component ~~propagates~~along the horizontally oriented waveguide element and said TM component ~~propagates~~along the vertically oriented waveguide.

10. (New) The integrated optic polarization splitter of claim 1, wherein said vertically oriented waveguide element is tapered.

11. (New) The integrated optic polarization splitter of claim 3, wherein said vertically oriented waveguide element and horizontally oriented waveguide element have different sizes.

12. (New) The integrated optic polarization splitter of claim 1, wherein said vertically oriented waveguide element and horizontally oriented waveguide element are rectangular waveguides.

13. (New) The integrated optic polarization splitter of claim 1 wherein the cross section of the polarization splitter taken at a point along the length of the polarization splitter is not equal to the cross section of the polarization splitter taken at any other point along the length of the polarization splitter.